1. **Addressing Forecast Challenges at the Satellite Proving Ground for Marine, Precipitation, and Satellite Analysis in Preparation for GOES-16 and JPSS-1**

Testbed/Proving Ground Workshop
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The GOES-R and JPSS Proving Ground Programs were conceived to demonstrate and familiarize forecasters with the next generation geostationary and polar-orbiting satellite products and capabilities that will be incorporated into National Weather Service (NWS) and National Environmental Satellite, Data, and Information (NESDIS) operations. The Satellite Proving Ground for Marine, Precipitation, and Satellite Analysis (MPS PG) has been an active participant in the larger GOES-R and JPSS Satellite Proving Grounds for about five years and consists of the NWS Ocean Prediction Center (OPC), Weather Prediction Center (WPC), Tropical Analysis and Forecast Branch (TAFB) of the National Hurricane Center, and the NESDIS Satellite Analysis Branch (SAB). The first five years have focused on introducing new GOES-R and JPSS proxy products to forecasters using current data from GOES, MTSAT, METEOSAT, MODIS (Aqua and Terra), and S-NPP. With the advent of Himawari-8 and GOES-16 Advanced Baseline Imagery (ABI) and Geostationary Lightning Mapper (GLM) into the operational satellite suite at these centers, the forecasters are being introduced to satellite imagery and products at higher spectral, spatial, and temporal resolutions. These new capabilities will offer new methods to analyze and forecast weather phenomena that in the past were difficult to diagnose and forecast.

This presentation seeks to highlight some of the research projects embedded in the MPS PG that are addressing forecast challenges such as extreme rainfall, explosive cyclogenesis and associated hurricane-force wind events, extratropical transition of hurricanes/typhoons, and severe maritime convection. These projects involve forecasters and student interns who have utilized products such as the GLD-360 Lightning Density as a proxy for the GLM, multispectral products that help to emphasize certain atmospheric features, or NOAA Unique Combined Atmospheric Profiles (NUCAPS) to get a vertical profile of the atmosphere in the absence of radiosondes. This along with forecaster feedback is helping to pave the way for integrating GOES-16 ABI and GLM and JPSS (Suomi-National Polar Partnership (SNPP)) products into forecast operations.